


LOG OF MEETING

DIRECTORATE FOR ENGINEERING SCIENCES

SUBJECT: ASTM Subcommittee F15.45 for Candle Products-
Fire Safety Task Group

DATE OF MEETING: October 13-14, 2004

DATE OF LOG ENTRY: March 9, 2005

SOURCE OF LOG ENTRY: Allyson Tenney 
Directorate for Engineering Sciences

LOCATION: Columbus Courtyard by Marriott, Columbus, Ohio

CPSC ATTENDEES: Allyson Tenney, Engineering Sciences

NON-CPSC ATTENDEES: ASTM F 15.45 Fire Safety Task Group members

SUMMARY OF MEETING:

Members of the ASTM F15.45 Fire Safety Task Group (Candle Products) met at the Courtyard by Marriott in Columbus, Ohio and conducted by Chairman Jim Becker. The group continued developing a fire safety standard for candles. Minutes from the meeting are attached.

3-14-05 513
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AMERICAN SOCIETY FOR TESTING AND MATERIALS

FIRE SAFETY TASK GROUP OF SUBCOMMITTEE FOR CANDLE PRODUCTS (45) OF F-15 COMMITTEE ON CONSUMER PRODUCTS Courtyard by Marriott Hotel Downtown, Columbus, OH Wednesday-Thursday, October 13-14, 2004

"Draft" Minutes

March 9, 2005

Congratulations were given to Bob Moss for receiving the ASTM Achievement Reward. Bob has worked very hard for the F 15.45 subcommittee and is very deserving of this award. Jim informed the group that NFPA has released a new report for candle fire statistics for the years 1999-2001. The numbers of fires have increased.

On Monday, October 11, 2004, the revisions for the Glass and Terminology standards went to ballot. Jim reminded the task group members to cast their vote on these two ballot items.

Minutes were reviewed. Jim H had minor changes that included page 2, mid paragraph, is "impinging" the appropriate term to use? Bob Moss said consensus of larger committee was to choose a different word. Jim H is satisfied with impinging but felt it is difficult to read in the minutes. Perhaps add words like "inspecting for fire damage" or "inspecting for evidence of impingement." Jim Hoebel says that there may be no visible signs of impingement but that it may have in fact occurred. Thomas Dierker says include something like, "furthermore" at beginning of the sentence. On 4th page where it says, "CPSC Testified..." add "this fall." Page 5, Edenburn was misspelled. Page 6, need clarification and should state that "Jim Hoebel argued that 3 in/minute was a reasonable compromise.

Roger Parette from Hanna's Candle Co. has joined the subcommittee due to his interest in candle accessories and gel candle issues. Hanna's Candles manufactures gel candles, and his input on gel candles will be helpful.

Jim Becker said we will talk about gel candle issues in the future. He would like to arrange a conference call within the next few weeks with two gel candle manufacturers, two testing labs, gel manufacturers and whoever else is interested. Their objective would be to determine what tests should be done and who will do the tests to help identify potential gel candles issues. They will try and plan out how they can test gel candles to decide if additional requirements are needed for gel candles. George Pappus is concerned that if it isn't discussed in this Fire Safety group that we will basically loose sight of that. George feels it's important to emphasize that the number of candle fires are going up, not down. As much as we've tried, we have not influenced that scenario. Jim Becker says that he is surprised when this data was presented that somebody didn't say that data precedes the majority of standards we have worked on. The Labeling Standard is the only one that may have made a difference. George said reputable candle manufacturers have been following standards since day one and that we can't continue to think we don't have a problem because we do. George says "We are either missing the mark or there is a segment or contribution in some manufacturing sector of candles that we are not getting to". Bob indicated that 66% of fires were caused by incidences that were addressed on label standard. Jim Hoebel

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says he's not a fan of labeling as an effective way to reduce this problem. He questioned when, by date, the manufacturers started to voluntarily start making candles that met all of our fire safety standards. Jim Becker said they probably had been looking at safety at the earliest the Fall of 2001. Jim Becker was chairman of the Candle Performance Tech. Committee in 1995, so there could have been some movement as early as that too. Two major factors, Gel Candle & Candle Accessories, could be expected to have a positive impact on the industry and deserve expedited attention. Thomas questions whether the numbers are skewed due to intentional, arsonal fires. Becker said 3-4% is intentional. Intentional does not mean arsonal. Kelly Reed asked whether the increase of candle sales were factored into the candle fire statistics, but Jim said that was not incorporated into the data. Christy Wheeler asked if there is any way to track whether the candles causing fires were either imported or manufactured in the USA. Bob Moss said that that information is not known. Many times candles are getting to retail shelves having been only minimally tested. Retailers may only require 1 or 2 candles to test, which is not a statistically significant sample set.

We then began our discussion of the "draft" candle accessories standard to try to get it ready to go to ballot.

Title

We reviewed the title Safety Specification for Candle Accessories. Jim Hoebel suggested changing it to "Standard Specification" in replace of "Safety Specification". New title proposed is "Standards Specification for Fire Safety for Candle Accessories." Jim Hoebel says it is more consistent with ASTM Nomenclature.

Scope

Rich questions whether examples should be given of what a candle accessory is. Jim Hoebel suggests saying, "for instance" or "for example." Patty doesn't feel it is a good idea to put an assumption, she feels that "ignition source" is suitable.?? George does not think examples should be added to the candle accessory. Rich asks how you should advertise a candle and how it is marketed. George says if marketer sells both pieces, they have a responsibility to display them safely together. David Morrison thinks we should define "marketing." Patty and Kelly agree that "marketing" is different than "advertising." Advertising might be inappropriate, but the candle and the candle wreath is what is being "marketed." Rich says there is false advertising. Robert Harrington says that they sell gift packs that have flammable objects in the package with the candle, but they are not intended to be used with a candle. Jim Becker said when someone does a search in ASTM, the title, scope statements and key words come out without having to buy that standard. Bob Moss feels that having "for example" or "for instance" or something that says "including but not limited to..." would be a good idea. Our group opposed using "for example or for instance" in the scope statement.

Terminology Section

Jim Becker changed the terms to read alphabetically. All terms were changed to lower case letters. Third change was an editorial change; Bob Moss said parentheses needed to be changed in 2.2.8. Robert suggested changing that "usually" should be changed to "eventually" subside. The intent is that after it is tested, the time runs until there is not combustion process. Allyson asks if the phrase that "usually subsiding" should be omitted. We omitted the phrase "usually subsiding." George thinks we should add "light, heat and smoke." George asks how the completion of burn is defined. Afterglow in 16 CFR 1615 and in 1616 regarding children's

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sleepwear, is defined as the "continuation of glowing of parts of a specimen after the object has ceased flaming." We decided to use definition of afterglow in 16 CFR 1615.

Rich suggests redefining burn time as "period of sustained burning *and afterglow*." Robert and George feel that including afterglow makes it less strict. Jim H asks if afterglow is a risk. Becker says that flame spread would be the worse case. Bob Moss says that it depends on what the afterglow may come in contact with.

We are going to visit terms in 4.1.10.

Rich says 2.2.6 can't be discussed until we discuss 4.1.10. We decided that we will come back and look at the appropriate terms after we complete our discussion of section 4.

Robert asked if we should be more clear on what a Utility Candle is. Utility Candles are typically non-fragranced Paraffin candles. Jim Hoebel says the utility candle definition would in fact include Birthday candles because no minimum height or diameter is indicated. Bob Moss suggests including a range. JH says to add "approximately", or Rich says to add the word "original dimensions" It has been changed to **straight sided candle that is 3-6" in height and approximately 3/4" in diameter**. Bob Moss points out that the flame height is not indicated in the definition.

References

Jeanne Weatherly from BBW asks if titles would appear after the standards. In the Fire Safety standard we DO have titles. She also asked if ASTM F 2058 should be mentioned, and YES it should.

Flammability Test of Candle Accessories

Jim H asks if this section should come after requirements because that is how it is in the Fire Safety standard. It will be changed to have the requirements come first. JH also suggests including a summary of the test method. We all agreed to add a summary of the test method.

4.1.2, Rich has problem with 1st sentence, and questions whether the degrees and humidity is obtainable, or whether a special chamber would be needed. He asks why we are so tight on humidity change and so vastly different in the lab? David Edenburn had reported in a previous meeting that some materials retain moisture which affects their flammability. Jim Becker will refer to Dave about the conditioning of the samples. Bob Moss said there is a special chamber that would be needed. George says the easier the test is to conduct, the more people will do these tests. Tom says when they are required to have flame retardant materials, they do tests. When it comes down to presenting a fire marshal with a certificate, Tom does not sign that, and rather a third party lab would give the fire marshal data. Rich says that all test results that come back from lab should be verified. George prefers a less stringent test that people can do themselves. Jim Becker is hearing consensus that these strict numbers are needed in this standard. George wants the room condition numbers relaxed, but by doing that it may allow candle accessories manufacturers to avoid having to use 3rd party labs.

4.1.10 Jim Becker wants to reference ignition time of 60 seconds and burn rate while Allyson is still with us. Background: Dave Edenburn is the one who recommended 60 second time frame. Bob explained the test procedure: After you've conditioned the sample (however determined) you put sample on support (bed of nails) you'll take flame of candle and bring in contact with leaf, pinecone, berry, etc. Flame will make contact on edge surface for 60 seconds, flame stays stationary. If it ignites, you remove candle, start stop watch, and measure length of burn distance. If it burns for more than 60 seconds, you have to manually extinguish it with a CO2 fire

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extinguisher. George asks if the CO2 changes the sample's flammability. David Morrison said you can get condensation on sample from the fire extinguisher. Bob Moss would suggest using a new sample to test a different area. Kelly said that from the perspective of the retail side of industry; she thinks 60 seconds is too stringent because they'll be obsolescing millions of dollars of potentially safe products. 16 CFR 1500-44.?? She questioned if there is sufficient data to support the 60 second findings?? She feels that holding a flame on an object for 60 seconds will result in automatic failures all around. Kelly Reed says if it is flammable, it will catch fire. Jim Hoebel points out that it's not the ignition that is a failure, but it is the spread of the flame. George says the CFR standard requires that the label states that it is flammable. Allyson said the CPSC thought 60 seconds was appropriate. Edenburn suggested using V0 materials, our committee thought that was too stringent. KR suggests possibly changing 60 seconds to 30 seconds. Allyson was going to look at some samples that have been recalled. She may be able to bring some in. Group feels that 60 seconds is reasonable time for flame contact period. Group feels that second 60 seconds is reasonable time.

5.1- Burn Rate. CPSC acknowledges the compromise with 3in/minute. Bob says that if an accessory burns 1" in 15 seconds and self-extinguishes, it would fail, even though it extinguished. Rich says you may need a new rate for each type of accessory. Group decided that would be too much detail. George suggests different standards for different types of products. He suggests maybe all candle holders should be non-flammable.

George brought up the title Flammability Requirements and thinks maybe it should say Non-flammability Requirements?

Item 4.1.2, Conditioning section of standards. We had talked about changing temperature ranges and altering relative humidity requirements. Allyson had said that one CFR section had an upper limit of 55% relative humidity, another CFR had 65% relative humidity or below. Jim Hoebel says rationale for doing it this way, you could test at a lower humidity but it is making it more stringent. However, you would lose reproducibility. Jim Becker said most materials used in accessories won't be affected much by humidity. Rich says that 55% maximum would be a good approach. Rich doesn't see it having a big affect if it was conditioned at 40% or 50% relative humidity. He doesn't feel like we are endangering anybody by setting relative humidity to 55%. George asks Bob how much of a difference 10% would make. Bob said on fabric testing, it would make a lot of difference. He's done more intense testing with garment flammability rather than materials for accessories. Polyester is a garment exempt from garment standards because it melts and does not sustain a flame. Polyester is not exempt from Children's Sleepwear. George proposes giving an exemption for certain materials. Jim Becker doesn't feel that we should get into the "exemption" game since new materials may be made. Jim Hoebel says polyester works well in garments, but that it's dangerous to conclude that polyester is a safe material. It may confuse people to thinking that polyester and cotton blends are safe as well, which is untrue. Jim Becker will do word-smithing on this topic and we will discuss next time. Change relative humidity to no greater than 55% for conditioning.

Regarding the temperature that the sample should be conditioned...Jim Becker asks if there is a temperature requirement. He proposes taking the temperature out. Jim Hoebel said you could either put 23 +/- 2, or that we could give min/max temperature. This might accelerate the conditioning. Jim suggests 70-75 degree F. Bob said that labs should condition samples the same way to have the same results, and drive some consistency in the testing. Jim H suggests putting at least a minimum temperature in. Suggestion is to change conditioning temperatures to 20-30 degrees C or 68-86 degrees F, and 70% or less for the actual testing condition.

4.1.3 George said the more draft the more stringent the test. David Morrison questions whether the size of the chamber has to be defined. Thomas suggests changing "chamber" to "area".

Robert suggests changing verbiage to draft free environment. Jim Becker asks to substitute "environment" for "chamber." Jim Becker will re-word this.

4.1.4 George is unclear to what this means. Bob says it states in the test that you are going to test every part of the item on the accessory. If the item does in fact ignite, he would use another sample. He explains that moving or cleaning up the debris from the area is important. Bob said what we are looking for is flame spread. Patty suggests distinguishing between the environment prep vs. the accessory prep. Jim Becker says we decided as task group to test the finished product. Jim Becker questioned what to do when you test a material and it fails, but had it been in a finished product, it wouldn't have failed. Bob said that there might be a berry that is .25" that combusts, but the remainder of the finished product would not fail. Rich said at some point, when too many things are failing, we may want to develop a standard for the components. Becker said that in previous discussions Dave Edenburn said only a certain amount of materials should be used in accessories. Dave suggested perhaps indicating what can or can't be used in accessories. George has a problem with how do you light the accessory, where do you light the accessory, and struggles with how the test would even be run. Robert suggests include a photo or an example of how the test would be run as an appendix. 4.1.4 will be changed to "After each test, clean out the test area prior to conducting the next test."

4.1.6-4.1.8 David Morrison and Rich suggest putting "appreciably" in front of retard. Jim Hoebel suggests including a summary or a picture from ASTM F963 referencing the nails and wire. Bob wants to reference it since it is already accepted. Jim Hoebel asks if ASTM would permit someone like Bob to summarize it and make some additions to 4.1.5 such that this fixture is described in some manner that we know what it looks like before going onto next method. George said in the smoke standard, we had a picture of a densitometer. George suggests taking a photograph of it and including it in the standard.

Robert says that the major axis is defined as the longest distance on the accessory. David asked if it is said that the accessory is suppose to be tested the way it was intended to be used. Becker said it is in the standard. Would this eliminate the problem of major axis? George asks how this differs from end of 4.1.8. Robert said what we originally talked about is that you may have to test something twice. Roger suggest striking all of 4.1.8 or at least the last sentence "In addition to the standard test protocol, two samples shall be tested in a worst case position which is identified as probably mis-use." **That sentence will be omitted.** Rob verified that it is Appendix 5. It describes how to find the major axis, but does not mention circular objects. The Optional Statement was decided to be kept in it but Bob is going to re-word it.

4.1.7 Jim Becker thinks it should be a part of 4.1.6. Bob says it is separate because it is something that was copied from that appendix. Jim H said round robin testing is primary used to develop statements of precision and bias.

4.1.8 Thomas suggested replacing "shall be ignited" with "shall be attempted to be ignited". Jim Becker felt that that would be more accurate. Bob suggests saying, "Shall be exposed to the ignition source" since the accessory may not ignite.

Patty suggests defining major axis and giving basic common shapes and examples would be helpful and provide substance as opposed to just taking a stab at it. F963 does have a picture of a major axis in rectangular form. George questions whether we need to include "major axis." Patty suggests leaving 4.1.6 as is, and change 4.1.8. Patty says to take out language that tries to force you to ignite it in specific area. Rich asks if we should measure area burned not just linear propagation. Becker asks if we can strike "major axis" and replace with "entire length of specimen." We all agreed to move 4.1.1 to become the first sentence.

4.1.6. Instead of "major axis" change to "support the entire specimen". Jim H doesn't feel that specimen and finished product are interchangeable.

"When orienting, provide support for the entire specimen without sagging, making sure the supporting device does not appreciably retard the spread of flame." 4.1.6 and 4.1.7 will have subtitle Orientation of Specimens. 4.1.8 will have title Ignition of Specimens.

Have 4.1.8 and 4.1.9 under heading Ignition of Specimens. Kelly Reed suggests adding 4.1.10 into Ignition of Specimens as well. Jim H brings up the idea of not indicating where on the finished product it should be lit and tested and eliminating "major axis." Currently, we are measuring length of flame spread from point of ignition to furthest point of flame travel, unilaterally, not bi-laterally. David suggests doing a percent lost, JH says he's Brilliant!!! © JH says that to correlate the rate of heat release they measure how fast the weight is released. Becker asks if we even want to mention Major Axis. The toy standard and FHSA both use the concept of major axis, but we need to have another form to measure rate of burn. Everyone agrees to getting rid of term Major Axis. 4.1.7 will be changed from "end of a major axis" to "point of ignition exposure."

4.1.8 Patty suggests saying at the same "point" rather than "end". Rich doesn't see the need for 4.1.8. Rob agrees with Rich. This is just for repeated testing.

4.1.9 We should take out the word "end." Jim Becker says according to Dave Edenburn, you couldn't allow anything that won't pass the V0 test. Maybe we should test all raw materials and only allow materials that pass a certain level of flammability. Roger says they look for finished product and results from finished piece as a whole. Rich suggests going back to what David Morrison said, and take a segment, burn it and see what's left. Making sure that the material or sample you took has all the representative materials included. Rich says this gets into long, expensive testing. Tom said every standard varies. If there are areas that are congested with people, all the materials must be flame retardant. In hotel lobbies, where there is less congestion, the standards may not be as strict. The most lenient is a V2, which is with Polyethylene. Fire Marshall's don't take it to labs, but look at data themselves of finished product. They look at the burn rate. Each location is different, and fire marshals will determine what they want depending on location. V2 is more of the norm, and doesn't limit creativity too much. V0 is rather difficult. There is a surface application or an inherent characteristic. Tom points out that flame retardants are temporary and their effectiveness lessens with time, handling and washing.

Robert suggests that if the flame doesn't spread more than 6 inches on finished good, it passes. Jim Hoebel said that is what the government requires for children's sleepwear. Combustion process can be fast or slow, and the distance is the only thing that is measured. What it does is require sample to self-extinguish before it goes a certain length.

Becker says there are still some points to how we are going to test and how we are going to measure. Still we need to come up with number of inches we are going to allow. Jim Becker asked for volunteers to develop Test Method section that could be presented to everyone before our next meeting. Bob Moss, Robert Harrington, Tom Acklin, Jim Hoebel, George Pappas and Jeanne Weatherly. Jim Hoebel would like to at least leave on the table the VO approach.

6 Tilt Stability of Candle Accessories: Jim's proposal was to get rid of Tilt. That was approved.

Correction: 6.4 should be 6.4.1.

6.4.2 BBW suggests testing the accessory designed to hold free standing pillar candles using a 3"x 6" rather than a 3"x 9". There was some discussion around this proposal, but the original intent of this section of the standard was to address candle fire data which includes candle tipovers as a contributing factor. The consensus of the task group is that a 3" x 9" candle be used

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in this test for pillar candle holders. Patty suggests 6.4.3 covers 6.4.2. Jim H says in 6.4.3., the first sentence should be made clear that it applies to accessories that use all types of candles. Replace "taper" with "candle" in the example statement.

6.4.3. Robert suggested a warning statement that if it fails a 3x9, there would be some indication on the label of what candles are suggested for that accessory. This would need to be permanent fixed on container. Becker proposes using language from pre-cautionary labeling standard. Bob suggest, "Do not use with a candle greater than (size TBD)."

Roger questions if there are exemptions for church candle holders.

6.5 Robert questions if we should ask for more than one sample to be tested? He suggests testing 4 samples. Bob said we didn't indicate sample size in fire safety standard and thinks that there should be a minimum amount of samples indicated. Jim Becker said it's up to manufacture to decide how many candles should be tested. Jim Hoebel recommends clarifying to rotate 180 degrees (1/2 revolution), rather than one full revolution.

We finished our discussion and decided that our next meeting would be December 1-2, 2004. We will continue our discussion on the candle accessories standard at that meeting.

ATTENDEES

Wednesday, October 13, 2004

George Pappas Sr., Lumi-Lite Candle Co.
Patricia Williams, S.C. Johnson, Inc.
John Witham, Candle-Lite, Inc.
Rob Harrington, Blyth Industries, Inc.
Richard Signorelli, Belmay, Inc.
Roger Parette, Hanna's Candle Co.
Jim Becker, Candle Solutions
Christy Wheeler, Thomas Dierker, Atkins & Pearce, Inc.
William Comber, Libbey Glass
JoeAnna Antonelli, Kelly Reed, Bath & Body Works
Robert Moss, SEA Ltd.
Jim Hoebel, Consumer
Tom Acklin, Autograph Foliages
Allyson Tenney, CPSC
Kathy Seidenkrantz, NCA
David Morrison, Penreco

Thursday, October 14, 2004

All of the above except;
Allyson Tenney
John Witham

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